ABSTRACT OF THE DISCLOSURE

The invention provides an apparatus for determining a reference orientation (pattern orientation) to a fingerprint-like pattern, formed with a number of curves,

5   accurately in a short time. The apparatus includes a pattern-center determination section for determining a reference center to the pattern, a reference-circle generation section for generating a reference circle centered at the pattern center, a reference-circle-

10   intersecting-point calculation section for calculating intersecting points of the reference circle and the curves of the pattern, a reference-point determination section for determining a reference point for the pattern orientation based on a relationship between directions of the reference

15   circle and directions of the pattern curves at the intersecting points, and a pattern-orientation determination section for determining the pattern orientation based on the pattern center and the reference point. The apparatus can be applied to a system which

20   performs personal authentication using biometric information, such as a fingerprint, or a like system.